

Appendix E
Application for U.S. Fish & Wildlife Service
Letter of Authorization

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**Polar Bear, Pacific Walrus, and Grizzly Bear
Avoidance and Human Encounter/Interaction Plan
Revised Outer Continental Shelf Lease Exploration
Plan
Camden Bay, Alaska**

May 2011

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Table of Contents

	<u>Page</u>
ACRONYMS	iii
1.0 INTRODUCTION.....	1
1.1 Background	1
1.2 Proposed Exploration Plan.....	2
1.3 Ice Management	11
1.4 Oil Spill Prevention and Contingency Planning.....	14
2.0 POLAR BEAR, PACIFIC WALRUS, AND GRIZZLY BEAR PRESENCE DURING PLANNED DRILLING ACTIVITIES OFFSHORE BEAUFORT SEA	16
2.1 Polar Bears	16
2.2 Pacific Walrus	17
2.3 Grizzly Bears.....	17
3.0 THE PLAN – SPECIFIC OBJECTIVES AND ACTIONS	17
3.1 Prevent Polar and Grizzly Bear/Human Interactions	18
3.2 Protecting Workers and Bears.....	18
3.3 Protecting Workers and Walrus	20
3.4 Protecting Polar Bears and Walrus during Ice Management.....	20
3.5 Protecting Polar Bears and Walrus during Oil Spill Response	22
4.0 FOOD WASTE MANAGEMENT PLAN.....	23
5.0 SAFETY AND COMMUNICATION	24
6.0 TRAINING	24
6.1 Marine Mammal Observer Training	24
6.2 Bear Guard Training	25
6.3 Other Training Materials and Meetings	25
7.0 AT-RISK LOCATIONS AND SITUATIONS	25
8.0 REPORTING	26
8.1 Polar Bear Reporting.....	27
8.2 Grizzly Bear Reporting	28
8.3 Walrus Reporting	28
9.0 INTENTIONAL “TAKE” ACTIONS FOR BEARS	29
10.0 PLAN OF COOPERATION	30
11.0 REFERENCES.....	31

Figures

Figure 1.2-1 Planned Exploration Drilling Program Area 3
Figure 1.2-2 Ice Management Vessels Configuration for the *Kulluk* or *Discoverer* 6
Figure 1.2-3 Schematic of ZVSP 11

Tables

Table 1.2-1 Camden Bay Drill Sites..... 4
Table 1.2-2 Camden Bay Exploration Drilling Program – Proposed Support Vessel List..... 7
Table 1.2-3 Camden Bay Exploration Drilling Program – Proposed Oil Spill Response Vessel List ... 9
Table 1.2-4 Camden Bay Exploration Drilling Program – Proposed Aircraft List 10
Table 1.2-5 Sound Source (Airgun Array) Specifications for ZVSP Surveys in the Beaufort Sea in
2012 11

Attachments

Attachment A Ice Management Plan – Beaufort Sea
Attachment B Marine Mammal Monitoring and Mitigation Program (4MP)
Attachment C Bear Avoidance and Encounter Procedures
Attachment D Wildlife Notification Flow Chart
Attachment E Polar Bear Sighting Report
Attachment F Grizzly Bear Observation Form
Attachment G Walrus Sighting Report
Attachment H Plan of Cooperation Addendum

ACRONYMS

°	degree(s)
°C	degrees Celsius
4MP	Marine Mammal Monitoring and Mitigation Plan
ACS	Alaska Clean Seas
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AW	Augusta Westlund
bb1	barrel(s)
BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
CFR	Code of Federal Regulations
cm ³	cubic centimeters
<i>Discoverer</i>	Motor Vessel <i>Noble Discoverer</i>
DP	Dynamic Positioning
EA	Environmental Assessment
EP	Exploration Plan
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
FR	Federal Register
ft	foot/feet
GP	General Permit
hr/day	hours per day
IMP	Ice Management Plan
in.	inch(es)
in ³	cubic inch(es)
kg	kilogram(s)
km	kilometer(s)
km/hr	kilometers per hour
<i>Kulluk</i>	conical drilling unit <i>Kulluk</i>
LOA	Letter of Authorization
m	meter(s)
M/V	Motor Vessel
m ³	cubic meters
max	maximum
mi	mile(s)
MMO	Marine Mammal Observer
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
NMFS	National Marine Fisheries Service
<i>Nordica</i>	Motor Vessel <i>Nordica</i>
NPDES	National Pollutant Discharge Elimination System
OCS	Outer Continental Shelf
ODPCP	Oil Discharge Prevention and Contingency Plan
OSR	oil spill response
OST	oil storage tanker
OSV	offshore supply vessel
Plan	Polar Bear, Grizzly Bear and Pacific Walrus Avoidance and Human Encounter/ Interaction Plan
POC	Plan of Cooperation

RA	Regulatory Affairs
RS/FO	Regional Supervisor/Field Operations
SAR	Search and Rescue
Shell	Shell Offshore Inc.
SIWAC	Shell Ice and Weather Advisory Center
U.S.	United States
USFWS	U. S. Fish and Wildlife Service
VOSS	Vessel of Opportunity Skimming System
VSI	Vertical Seismic Imager
VSP	vertical seismic profile
WCD	worst case discharge
ZVSP	Zero-offset vertical seismic profiling

1.0 INTRODUCTION

This Polar Bear, Pacific Walrus, and Grizzly Bear Avoidance and Human Encounter/Interaction Plan (Plan) has been developed by Shell Offshore Inc. (Shell) in support of its exploration drilling program in Camden Bay in the Beaufort Sea, Alaska planned to begin in the summer of 2012.

1.1 Background

This Plan details the policies and procedures adopted by Shell, which will be implemented at its operations in Camden Bay as well as its project support activities throughout Alaska's North Slope in 2012. The Plan is intended to support activities that may encounter polar bears (*Ursus maritimus*) and Pacific walrus (*Odobenus rosmarus divergens*), both trust species of the U.S. Fish and Wildlife Service (USFWS), as well as grizzly bears (*Ursus arctos horribilis*), which are under the jurisdiction of the Alaska Department of Fish and Game (ADF&G).

This Plan addresses polar bears, grizzly bears and Pacific walrus, although interactions with Pacific walrus and grizzly bears are considered to be unlikely. It is expected that polar bears will be found within the Shell project areas during the drilling season when pack ice is nearby. In addition, polar bears are likely to be found on land, such as barrier islands. Shell anticipates that chances for encounters of Pacific walrus and grizzly bear are low and interactions and encounters are considered unlikely for this project. Pacific walrus are considered an extralimital species with infrequent use of the Beaufort Sea and, while grizzly bears may be present on the shoreline of the North Slope during the summer, typically they are not seen offshore where the project activities in support of exploration drilling will be located.

The Plan ensures that workers are familiar with the issues and safety precautions associated with working in bear country. The goal of this document is to standardize bear interaction and avoidance protocol and wildlife reporting efforts for the project. With proper knowledge and training, workers will detect the presence of bears and walrus quickly and respond appropriately through monitoring, avoidance, and/or, if necessary, active deterrence by USFWS certified bear hazers. The awareness and prevention of human/bear and human/walrus interactions will ensure the safety of workers as well as wildlife.

This Plan is intended to fulfill the requirement for a "site specific polar bear awareness and interaction plan," as required by 50 Code of Federal Regulations (CFR) 18.124(c)(3), which is part of the requirements for a Letter of Authorization (LOA) for the incidental, non-lethal, unintentional take of polar bear and Pacific walrus as specified under 50 CFR 18, Subpart J. This Plan also applies to the intentional take of polar bears by hazing pursuant to section 101(a)(4)(A), 109(h), and 12(e) of the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "taking" of marine mammals. "Take" is defined to mean, "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal." The "taking" of polar bears is allowed for Alaska Native subsistence or to protect human life. The MMPA and supporting regulations make provision to "take" marine mammals in the course of scientific research and other legitimate work in polar bear habitat.

On May 15, 2008, the polar bear was listed as a threatened species under the Endangered Species Act (ESA). In June 2008, a special rule under authority of section 4(d) of the ESA was adopted which states that the regulatory requirements under the ESA are met by following the requirements of the MMPA, including obtaining a LOA. The grizzly bear is not protected in Alaska under the MMPA or ESA, but is protected by State game laws.

On October 29, 2009, a federal register notice (74 Federal Register [FR] 56058) was published outlining proposed critical habitat for the polar bear. The USFWS published a final critical habitat designation December 7, 2010, which became effective January 6, 2011.

Like polar bears, Pacific walrus are also protected under the MMPA. Also, as of February 10, 2011 the USFWS published its 12-month finding that listing the Pacific walrus as endangered or threatened under the ESA is warranted. Though, with publishing of the 12-month petition finding for the Pacific walrus, it has been added to the candidate species list. Consistent with section 4(b)(3)(C)(iii) of the ESA, USFWS will review the status of the Pacific walrus through an annual Candidate Notice of Review.

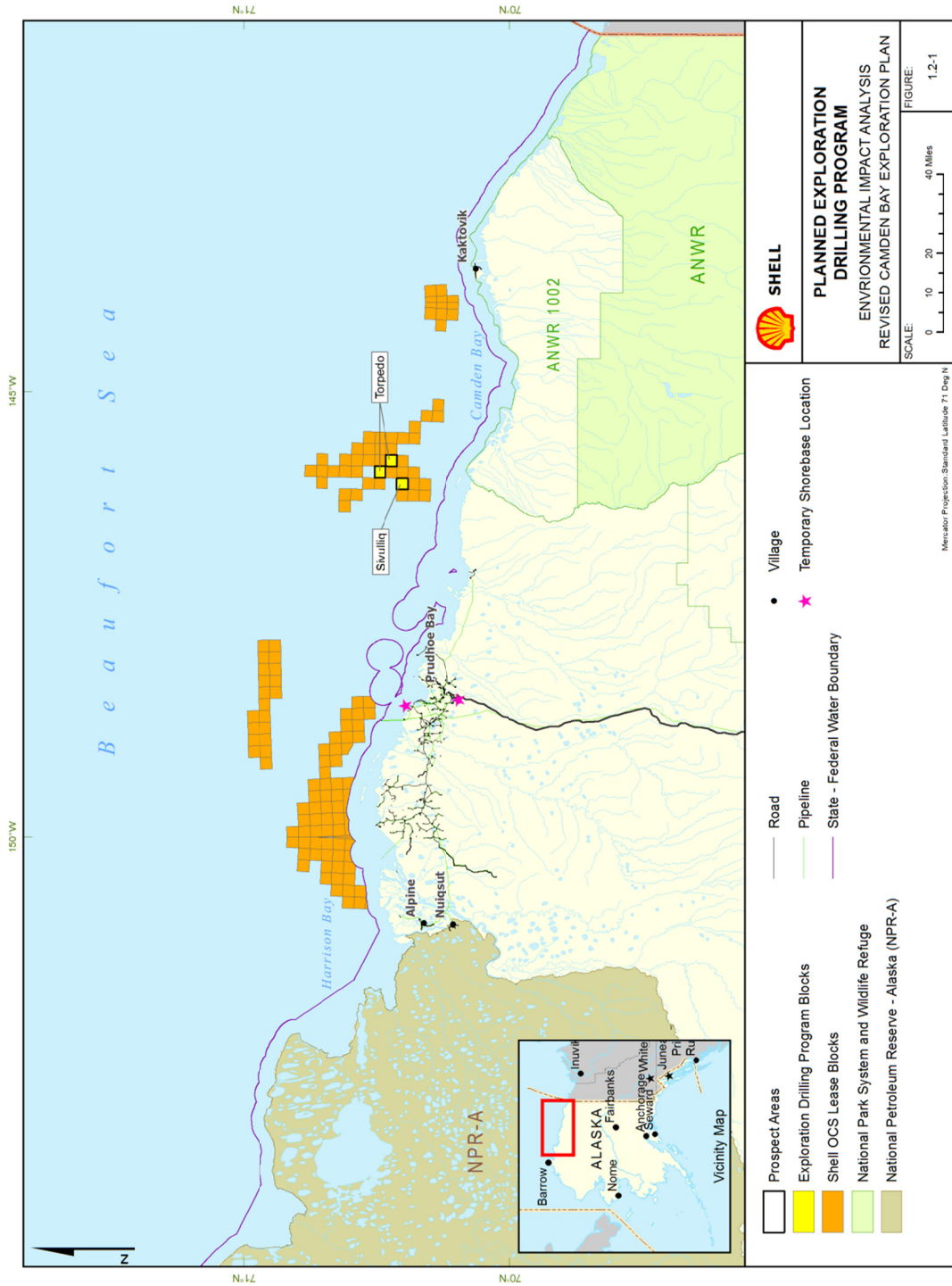
1.2 Proposed Exploration Plan

Exploration Drilling

Shell submitted its initial Outer Continental Shelf (OCS) Camden Bay Exploration Plan (EP) to the Minerals Management Service (MMS) (now the Bureau of Ocean Energy Management, Regulation and Enforcement and hereinafter collectively referred to as “BOEMRE”) in May 2009. BOEMRE conditionally approved the Camden Bay EP on October 16, 2009 following a BOEMRE Environmental Assessment (EA) and Finding of No Significant Impact (FONSI). The initial Camden Bay EP contemplated a single season of operations using the Motor Vessel (M/V) *Noble Discoverer* (*Discoverer*) (formerly *Frontier Discoverer*) to drill, evaluate and plug and abandon exploration wells at two drill sites: one at the Sivulliq prospect (Sivulliq N – Flaxman Island Lease Block 6558) and one at the Torpedo prospect (Torpedo H – Flaxman Island Lease Block 6610). Shell planned to initiate exploration drilling activities under the Camden Bay EP in the summer of 2010, but the exploration activities were postponed when BOEMRE suspended all exploration drilling activities in the Arctic following the Deepwater Horizon incident in the Gulf of Mexico.

Pursuant to a revised Camden Bay EP submitted to BOEMRE in May 2011, Shell plans to drill four wells on three OCS lease blocks in the Camden Bay area of the Beaufort Sea (Figure 1.2-1) beginning in the summer of 2012. Two of the four wells in Shell’s revised EP (Sivulliq N and Torpedo H) were included in Shell’s initial Camden Bay EP, and were specifically reviewed in BOEMRE’s October 2009 EA and FONSI. The EP revision includes two additional wells, one each at the same prospects; addresses Shell’s agreement with the local communities to collect selected waste streams that, under the initial Camden Bay EP, otherwise would have been discharged pursuant to the current United States (U.S.) Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit (GP); and notes the possibility that Shell might ultimately decide to substitute the *Discoverer* for the conical drilling unit *Kulluk* (*Kulluk*) to complete the wells contemplated by the revised Camden Bay EP. The four drill sites identified in Shell’s revised Camden Bay EP are listed below in Table 1.2-1.

Figure 1.2-1 Planned Exploration Drilling Program Area



Shell plans to drill four wells (Table 1.2-1) to objective depth pursuant to its revised Camden Bay EP. As with any Arctic exploration drilling program, weather and ice conditions, among others, will dictate the actual sequence of wells. All wells are planned to be vertical. Bottomhole locations will have the same latitude and longitude as surface locations.

Table 1.2-1 Camden Bay Drill Sites

Drill Site	Lease File Number	NR06-04 Flaxman Island Lease Block No.	Surface Location (NAD 83)*		Distance to Mainland Shore mi (km)
			Latitude (N)	Longitude (W)	
Sivulliq G	OCS-Y 1805	6658	70° 23' 46.82"	146° 01' 03.46"	16.6 (26.7)
Sivulliq N**	OCS-Y 1805	6658	70° 23' 29.58"	145° 58' 52.53"	16.2 (26.1)
Torpedo H**	OCS-Y 1941	6610	70° 27' 01.62"	145° 49' 32.07"	20.8 (33.5)
Torpedo J	OCS-Y 1936	6559	70° 28' 56.94"	145° 53' 47.15"	23.1 (37.2)

*North American Datum 1983

**Drill sites from initial Camden Bay EP

This revised Camden Bay EP also contemplates a situation where a well that is started must be temporarily suspended due to ice, weather, or other conditions, and finished at a later date. Any well on which drilling is suspended will be secured in compliance with BOEMRE regulations and with the approval of the Regional Supervisor/Field Operations (RS/FO), whether it is permanently abandoned (30 CFR 250.1710 through 1717) or temporarily abandoned (30 CFR 250.1721-1723).

Shell may conduct a geophysical survey referred to as zero-offset vertical seismic profiling (ZVSP) at each drill site where a well is drilled. Once the objective intervals are fully evaluated, each exploration well will be plugged and abandoned in compliance with BOEMRE regulation.

By agreement with the local communities, during the performance of exploration activities contemplated by the revised Camden Bay EP, Shell will not discharge selected waste streams during routine exploration drilling operations, even though the waste streams are allowable discharges under the current EPA administered Arctic NPDES GP AKG-28-0000. Shell will not discharge treated sanitary waste (black water), domestic waste (gray water), bilge water and ballast water at any time and drilling mud and cuttings with adhered drilling mud below the depth of the 20-inch (in.) conductor shoe. These wastes will be collected and stored on a deck barge and transported and disposed of at an approved and licensed facility. The following licensed facilities have been identified as potential sites for disposal of those waste streams collected during exploration operations:

- Waste Management Inc. (Arlington, Oregon) – water based mud, cuttings with adhered mud, non hazardous trash and debris, treated sanitary waste, treated domestic waste, uncontaminated ballast water, treated bilge water, hazardous waste, used oil
- Emerald Services Inc. (Palmer, Alaska and Seattle, Washington) – hazardous waste, used oil

Cuttings generated while drilling the mudline cellar, the 36- and 26-in. hole sections (all drilled with seawater and viscous sweeps only) plus cement discharged while cementing the 30- and 20-

in. casing strings will be discharged on the surface of the seafloor under provisions of the previously mentioned NPDES GP.

Drilling Vessels

Kulluk

The *Kulluk* has an Arctic Class IV hull design, offers full accommodations for a crew of up to 108 persons. The *Kulluk* is capable of drilling in up to 600 feet (ft) [182.9 meters (m)] of water and is moored using a 12-point anchor system. The *Kulluk's* mooring system consists of 12 Hepburn winches located on the outboard side of the main deck. anchor wires lead inboard off the bottom of each winch drum. The wire is then redirected by a sheave, down through a hawse pipe to an underwater, ice protected, swivel fairlead. The wire travels from the fairlead directly under the hull to the anchor system on the seafloor. The *Kulluk* would have an anchor radius maximum of 3,117 ft (950 m) for the Sivulliq drill sites and 2,995 ft (913 m) for the Torpedo drill sites. While on location at the drill sites, the *Kulluk* will be affixed to the seafloor using 12, 15 metric ton Stevpris anchors arranged in a radial array.

The *Kulluk* is designed to maintain its location in drilling mode in moving ice with thickness up to 4 ft (1.2 m) without the aid of any active ice management. With the aid of the ice management vessels, the *Kulluk* would be able to withstand more severe ice conditions. In more open water conditions, the *Kulluk* can maintain its drilling location during storm events with wave heights up to 18 ft (5.5 m) while drilling, and can withstand wave heights of up to 40 ft (12.2 m) when not drilling and disconnected (assuming a storm duration of 24 hours).

Discoverer

The *Discoverer* is a true drillship, and is a largely self-contained drillship that offers full accommodations for a crew of up to 140 persons. The *Discoverer* is an anchored drillship with an 8-point anchored mooring system and would likely have a maximum anchor radius of 2,903 ft (885 m) at either the Sivulliq or Torpedo drill sites. While on location at the drill sites, the *Discoverer* will be affixed to the seafloor using eight 7,000 kilogram (kg) Stevpris anchors arranged in a radial array. The hull has been reinforced for ice resistance.

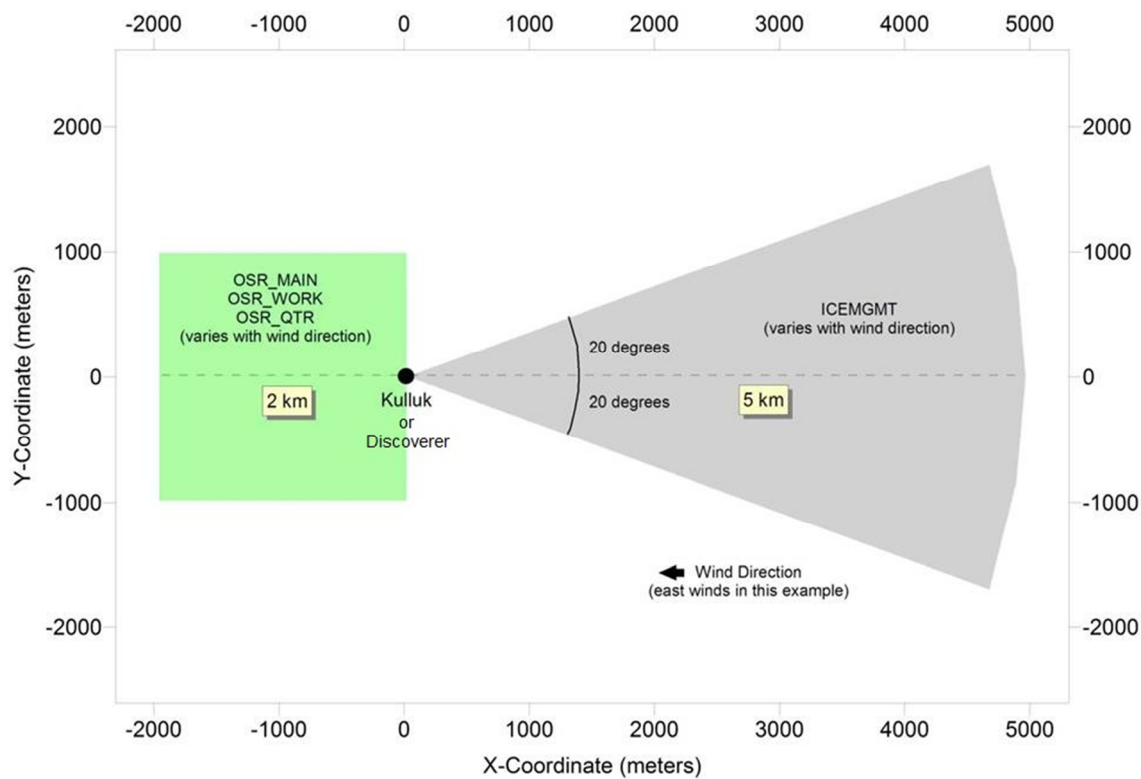
Support Vessels

During exploration operations, the *Kulluk* or *Discoverer* will be attended by a minimum of 11 vessels that will be used for ice management, anchor handling/ice management, oil spill response (OSR), refueling, resupply, waste removal, and servicing of the drilling operations (see Table 1.2-2). A small number of workboats associated with OSR training, and stored on an OSR barge are included in Table 1.2-3, but are not counted among the attending vessels. All vessels will either be in transit or staged (i.e., on anchor) in the Beaufort Sea during the exploration drilling activities.

The M/V *Nordica* (*Nordica*) or a similar vessel, will serve as the primary ice management vessel in support of the *Kulluk* or *Discoverer*. The *Hull 247*, or a similar vessel, will provide anchor handling duties, and will also serve as a secondary ice management vessel. When managing ice, the *Nordica* and *Hull 247* will generally be confined to a 40 degree (°) arc up to 3.1 miles (mi)

(5 kilometers [km]) upwind originating at the drilling vessel (Figure 1.2-2). It is anticipated that the ice management vessels will be managing ice for 38 percent of the time when within 25 mi (40 km) of the *Kulluk* or *Discoverer*. Active ice management involves using the ice management vessel to steer larger floes so that their path does not intersect with the drill site. Around-the-clock ice forecasting using realtime satellite coverage (available through the Shell Ice and Weather Advisory Center [SIWAC]) will support the ice management duties. When the *Nordica* is not needed for ice management, it will reside outside the 25 mi (40 km) radius from the *Kulluk* or *Discoverer* if it is safe to do so. The *Nordica* and *Hull 247* will enter and exit the Beaufort Sea with the *Kulluk* or *Discoverer*.

Figure 1.2-2 Ice Management Vessels Configuration for the *Kulluk* or *Discoverer*



As anchor handler, *Hull 247's* duties include setting and removing anchors, berthing (accommodations) vessel, providing supplemental oil recovery capability (Vessel of Opportunity Skimming System [VOSS]) and managing smaller ice floes that may pose a potential safety issue to the *Kulluk* or *Discoverer* and the support vessels that will service the *Kulluk* or *Discoverer*.

The exploration drilling operations will require the transfer of supplies between the Deadhorse/West Dock shorebase or Dutch Harbor and the *Kulluk* or *Discoverer*. While the *Kulluk* or *Discoverer* is anchored at a drill site, Shell has allowed for 24 visits/tie-ups (if the *Kulluk* is the drilling vessel being used) or 8 visits/tie-ups (if the *Discoverer* is being used) throughout the drilling season from support vessels. The *Harvey Spirit* (or similar vessel), a 280 ft (85.4 m) offshore supply vessel (OSV) with Dynamic Positioning (DP), will shuttle supplies

from the *Arctic Seal* (or similar vessel) and/or the *Southeast Provider* to the *Kulluk* or *Discoverer*. During visits/tie-ups, the *Harvey Spirit* will be used to remove the mud/cuttings. The mud/cuttings will be transported to the *Southeast Provider* (or similar barge) or the waste barge for storage. Other waste streams (sanitary waste, domestic waste, bilge water, ballast water) will also be transferred to the *Southeast Provider* (or similar vessel) or the waste barge, for temporary storage. These waste streams will be barged south for disposal at the end of the drilling season. While the *Kulluk* or *Discoverer* leaves Camden Bay temporarily during the Kaktovik and Nuiqsut (Cross Island) subsistence whale hunts, Shell will resupply the *Kulluk* or *Discoverer* with drilling supplies and equipment brought in from Dutch Harbor and stored on the *Carol Chouest*, also an OSV, or the *Harvey Spirit*. An estimated 10 resupply trips between Dutch Harbor and the drilling program assets in the Beaufort Sea will occur during each drilling season. The *Carol Chouest* will be used as a backup supply vessel and shuttle between Camden Bay and Dutch Harbor. When drilling starts up again after the bowhead whaling hunt has concluded, additional resupply may be required from West Dock via the *Arctic Seal* via transfer to the *Harvey Spirit* to the drilling vessel.

Removal of waste and resupply to the drilling vessels will be conducted the same way regardless of drilling vessel.

Table 1.2-2 Camden Bay Exploration Drilling Program – Proposed Support Vessel List

Specification	Ice Management Vessel ¹	Anchor Handler ^{2,7}	OSV ³	West Dock Supply Vessel ⁴	OSV ⁵	Deck Barge ⁶	Waste Storage Barge
Length	380.5 ft (116 m)	360.6 ft (110 m)	280 ft (85.4 m)	134 ft (50.3 m)	280 ft (85.4 m)	360 ft (110 m)	500 ft (152.4 m)
Width	85 ft (26 m)	80 ft (24.4 m)	60 ft (18.29 m)	32 ft (11.6 m)	60 ft (18.29)	100 ft (30.5 m)	74 ft (22.6 m)
Draft	27.5 ft (8.4 m)	24 ft (7.3 m)	19.24 ft (5.87 m)	7 ft (2.1 m)	16.5 ft (5.0 m)	14 ft (4.3 m)	27.5 ft (8.4 m)
Accommodations (persons) (berths)	82	64	29	17	26	10	-
Maximum Speed	16 knots (30 km/hr)	15 knots (27.8 km/hr)	15 knots (25 km/hr)	10 knots (18.5 km/hr)	13.5 knots (25 km/hr)	10 knots (18.5 km/hr)	-
Fuel Capacity	11,070 bbl	12,575 bbl	8,411 bbl (normal) 11,905 bbl (max)	667 bbl	6,235 bbl (normal)	2,381 bbl	155,000 bbl

¹ Based on *Nordica*, or similar vessel

² Based on *Hull 247*, or similar vessel

³ Based on the *Carol Chouest*, or similar vessel

⁴ Based on *Arctic Seal*, or similar vessel

⁵ Based on *Harvey Spirit*, or similar vessel

⁶ Based on *Southeast Provider* & *Ocean Ranger*

⁷ Hull 247 is under construction by Chouest Offshore. By 2012, she will be christened under a name to be determined.

Oil Spill Response Vessels

The OSR vessels will include a primary OSR barge (the *Arctic Endeavor* and Point Class Tug, or similar vessel), an oil storage tanker (OST - M/V *Mikhail Ulyanov* or a similar vessel), and a containment barge (Table 1.2-3). The *Harvey Spirit* will act as a VOSS, while *Hull 247* will act as a VOSS and provide berthing for the oil spill response crew.

The OSR barge will have associated smaller workboats called Kvichaks. There are three 34-ft (10.4 m) Kvichaks that will support the OSR barge by laying out booms. One 47-ft (14.3 m) *Rozema* will provide skimming and boom towing services. *Hull 247* will be dedicated to the Camden Bay exploration drilling program and remain in the vicinity of the *Kulluk* or *Discoverer*, with the OSR barge and the OST being staged to respond as needed to a discharge. In the unlikely event of a spill, the *Hull 247* can also be used to lighter recovered oil, emulsions and free water to the *Mikhail Ulyanov*. Specifications for these vessels are provided in Table 1.2-3.

The containment barge will be tended by a tug and possibly an anchor handler (Table 1.2-3). The tug tending the containment barge will either drift or motor under “slow-steam” movement with the barge. An anchor handler is included in this revised EP only as an additional tending option for the containment barge, if Shell deems it necessary in advance of the season to anchor the containment barge. Shell does not assume the containment barge will be anchored or that the anchor handler is necessary, but includes the option of anchoring the barge and it being also tended by an anchor handler in case that option is chosen.

The *Mikhail Ulyanov* or similar vessel with similar liquid storage capacity would be staged such that it would arrive at a recovery site, if needed, within 24 hours of departure from their staging location. The purpose of the OST would be to provide a place to store large volumes of recovered crude oil, emulsion and free water in the unlikely event of a spill and OSR operations. The ship will have an ice-enhanced hull structure designed in compliance with LU6 (1A Super) ice-class standards, under the classification of the Russian Register of Shipping, and will be able to operate in temperatures of -40 degrees Celsius (°C) in ice up to 5 ft (1.5 m) thick without additional ice management.

Surplus storage capacity aboard the OST beyond what is required for response at a recovery site may be allocated to store other liquid commodities consumed by the drilling vessel and support vessels, including diesel fuel.

Table 1.2-3 Camden Bay Exploration Drilling Program – Proposed Oil Spill Response Vessel List

Specification	OSR Barge ^{1,2}		OST ^{1,3}	Containment Barge ^{1,4}		
	Barge	Tug		Barge	Tug	Anchor Handler ⁵
Length	205 ft 62.5 m	90 ft 27.4 m	853 ft 260 m	400 ft 122 m	136 ft 36.5 m	275 ft 83.7 m
Width	90 ft 27.4 m	32 ft 9.8 m	112 ft 34 m	100 ft 30.5 m	36 ft 11.1 m	59 ft 18.0 m
Draft	--	8.5 ft 2.6 m	44.6 ft 13.6 m	12 ft 3.7 m	20 ft 6.4 m	20 ft 6.1 m
Accommodations	--	8	TBD	--	10	23
Maximum Speed	--	7 knots (13 km/hr)	16 knots	--	10 knots	16 knots
Fuel Storage	--	1,428 bbl	440,000 bbl	--	3,690 bbl	7,484 bbl
Liquid Storage	18,636 bbl	--	543,000 bbl 86,328 m ³ ,	--	--	--
Workboats	(1) 47 ft (14 m) skim boat (3) 34 ft (10 m) work boats (4) mini-barges		--	--	--	

¹ Or similar vessel

² Based on the *Arctic Endeavor* & *Point Class* tug.

³ Based on the *Mikhail Ulyanov*

⁴ Based on a standard deck barge, Crowley Invader class ocean going tug, and a *Tor Viking*-style anchor handler

⁵ Vessel included for planning purposes only, not assumed necessary but as an additional tending option if deemed necessary by Shell.

Aircraft

Offshore operations will be serviced by helicopters operated out of an onshore support base location in Deadhorse. The helicopters are not yet contracted. A Sikorsky S92 or Augusta Westlund (AW) 139 capable of transporting 10 to 12 persons will be used to transport crews between the onshore support base and drilling vessel. It is expected that on average, a minimum of 12 flights per week will be necessary to transport supplies and rotate crews. A Sikorsky 92 or AW139 based in Barrow or Deadhorse will be used for search and rescue (SAR) operations and this aircraft will execute one training flight per month to the drilling vessel. A fixed wing aircraft, deHavilland Twin Otter (DHC-6) will be used for marine mammal observer (MMO) flights expected to fly daily for approximately 6 hours per day (hr/day).

Table 1.2-4 presents the aircraft planned to support the exploration drilling program. This includes crew changes via helicopter and search-and-rescue via helicopter, and a fixed wing aircraft for aerial monitoring of marine mammals.

Table 1.2-4 Camden Bay Exploration Drilling Program – Proposed Aircraft List

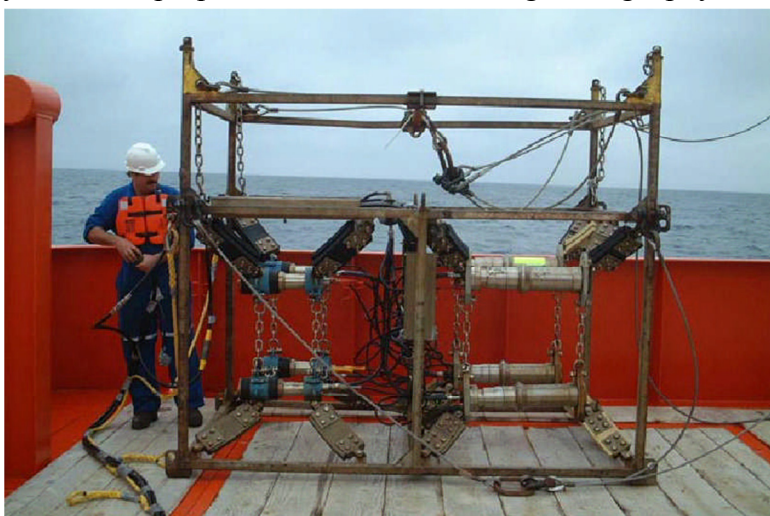
Aircraft	Flight Frequency
(2) Sikorsky S-92, AW139 or similar – crew rotation	Minimum of 12 trips/week between the shorebase and offshore vessels throughout the 2012 drilling season
(1) Sikorsky S-92 or AW139 Helicopter – SAR	Trips made only in emergency; one training flight/month
(1) deHavilland Twin Otter (DHC-6) – 4MP	Daily, beginning 5-7 days before drilling and ending 5-7 days after drilling ends

When transiting to location, the *Kulluk* (under tow) or *Discoverer* (under its own propulsion) and associated support vessels will transit through the Bering Strait into the Chukchi Sea on or after July 1, arriving at location near Camden Bay approximately 10 July. Exploration drilling activities at the drill sites are planned to begin on or about 10 July and run through 31 October, with a suspension of all operations beginning 25 August for the Nuiqsut (Cross Island) and Kaktovik subsistence bowhead whale harvests. During the suspension for the whale hunts the drilling vessel and support fleet will leave the Camden Bay project area and move to an area north of latitude 71° 25'N and west of longitude 146° 4'W. Should the drilling vessel or support vessels anchor during the suspension, none will anchor in known environmentally, or archaeologically sensitive areas. Shell will return to resume activities after the subsistence bowhead whale hunts conclude. Exploration drilling activities may extend through 31 October, depending on ice and weather conditions. At the end of the drilling season, the *Kulluk* or *Discoverer*, ice management vessels, and all remaining support vessels will transit west into and through the Chukchi Sea.

Vertical Seismic Profile

Shell may conduct a geophysical survey referred to as Vertical Seismic Profiling or VSP at each drill site where a well is drilled in 2012. During VSP surveys, an airgun array is deployed at a location near or adjacent to the drilling vessel, while receivers are placed (temporarily anchored) in the wellbore. The sound source (airgun array) is fired repeatedly, and the reflected sonic waves are recorded by receivers (geophones) located in the wellbore. The geophones, typically in a string, are then raised up to the next interval in the wellbore and the process is repeated until the entire wellbore has been surveyed. The purpose of the VSP is to gather geophysical information at various depths, which can then be used to tie-in or ground-truth geophysical information from the previous seismic surveys with geological data collected within the wellbore.

Shell will be conducting a particular form of VSP referred to as a Zero Offset VSP (ZVSP), in which the sound source is maintained at a constant location near the wellbore (Figure 1.2-3). A typical sound source that likely



Photograph of the ITAGA 8-airgun Array in Sled

would be used by Shell in 2012 is the ITAGA eight-airgun array, which consists of four 150 cubic inches (in³) (2,458 cubic centimeters [cm³]) airguns and four 40 in³ (655 cm³) airguns. These airguns can be activated in any combination and Shell would utilize the minimum total airgun array volume required to obtain an acceptable signal. Current specifications of the array are provided in Table 1.2-5. The airgun array is depicted within its frame or sled, which is approximately 6 ft x 5 ft x 10 ft (see photograph below). Typical receivers would consist of a Schlumberger wireline four level Vertical Seismic Imager (VSI) tool, which has four receivers 50-ft (15.2-m) apart.

Table 1.2-5 Sound Source (Airgun Array) Specifications for ZVSP Surveys in the Beaufort Sea in 2012

Source Type	No. Sources	Maximum Total Chamber Size	Pressure	Source Depth	Calibrated Peak-Peak Vertical Amplitude	Zero-Peak Sound Pressure Level
SLB, ITAGA Sleeve Array	8 airguns 4 X 150 in ³ 4 X 40 in ³	760 in ³ 12,454 cm ³	2,000 psi 140 bar	3.0 m / 9.8 ft 5.0 m / 16.4 ft	16 bar @1m 23 bar @1m	238 dB re1μPa @1m 241 dB re1μPa @1m

A ZVSP survey is normally conducted at each well after total depth is reached but may be conducted at a shallower depth. For each survey, Shell would deploy the sound source (airgun array) over the side of the *Kulluk* or *Discoverer* with a crane (sound source will be 50-200 ft (15-60 m) from the wellhead depending on crane location), to a depth of approximately 10-23 ft (3-7 m) below the water surface. The VSI with its four receivers will be temporarily anchored in the wellbore at depth. The sound source will be pressured up to 2,000 psi, and activated 5-7 times at approximately 20-second intervals. The VSI will then be moved to the next interval of the wellbore and reanchored, after which the airgun array will again be activated 5-7 times. This process will be repeated until the entire well bore is surveyed in this manner. The interval between anchor points for the VSI usually is between 200-300 ft (60-91 m). A normal ZVSP survey is conducted over a period of about 10-14 hours depending on the depth of the well and the number of anchoring points.

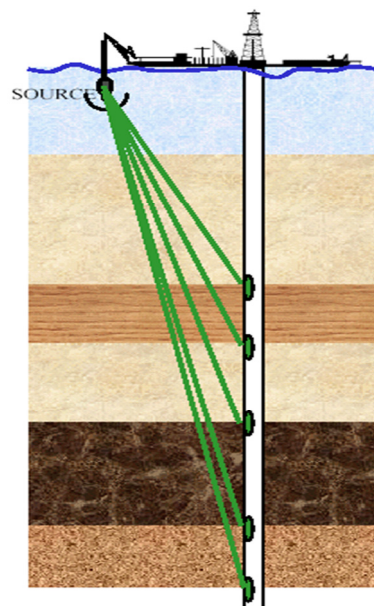


Figure 1.2-3 Schematic of ZVSP

Further information on Shell’s revised Camden Bay EP is detailed in the “Revised Outer Continental Shelf Lease Exploration Plan, Camden Bay, Alaska.”

1.3 Ice Management

Polar bears and walrus are strongly associated with sea ice so that ice management has the potential to affect individuals of these species. Some ice management may be required for Shell’s exploration drilling program. Shell has included two ice management vessels in the fleet supporting the drillship and has prepared and will implement an Ice Management Plan (IMP) (see Attachment A) for this contingency. The IMP includes ice detection and monitoring,

identifies ice alert levels and actions, defines and assigns personnel and responsibilities, and describes well suspension and re-entry procedures.

Shell's IMP relies heavily on the observations and experience of its Ice Specialists and Ice Advisors, a group of arctic-seasoned mariners whose sole duty is to provide critical information and advise drilling vessel supervisors and the drilling vessel master about any and all ice-related threats. These observers and advisors will be stationed on the drilling vessel, the ice management vessel and the anchor handler. Marine mammal monitoring by MMOs is also ongoing while ice management vessel movements and actions are underway with regard to ice-related threats. MMOs, operating under the guidance of the marine mammal monitoring and mitigation plan (4MP) (see Attachment B) for this exploration drilling program will advise ice management specialists and advisors on the necessary mitigation measures designed by the agencies to assist avoidance of incidental take of marine mammals, notably polar bears and Pacific walrus, while ice is being managed by vessels. Ice and weather forecasting is provided by SIWAC. This center is continuously manned by experienced personnel who rely on number of data sources for ice forecasting and tracking including:

- Radarsat and Envisat data – satellites with Synthetic Aperture Radar providing all-weather imagery of ice conditions with very high resolution;
- Moderate Resolution Imaging Spectroradiometer – a satellite providing lower resolution visual and near infrared imagery;
- Aerial reconnaissance – provided by specially deployed fixed wing or rotary wing aircraft for confirmation of ice conditions and position;
- Reports from Ice Specialists on the ice management vessel and anchor handler and from the Ice Observer on the drillship Incidental ice data provided by commercial ships transiting the area; and
- Information from the National Oceanographic and Atmospheric Administration ice centers and the University of Colorado.

General ice management practices are summarized below. Salient aspects include:

- Ice management around the *Kulluk* or *Discoverer* will involve redirecting, rather than breaking, ice floes while the floes are well away from the drill sites; and
- To minimize impacts on marine mammals, vessels that can safely travel outside of the polynya zone will do so, unless it is necessary to break ice (as opposed to managing ice by pushing it out of the way), or if sea state conditions require an alternative route.

Drift ice will be actively managed by ice management vessels, consisting of an ice management vessel and an anchor handling vessel. Ice management for safe operation of Shell's planned exploration drilling program will occur far out in the OCS, remote from the vicinities of any routine marine vessel traffic in Camden Bay thereby resulting in no threat to public safety or services that occurs near to shore. Shell vessels will also communicate movements and activities through the 2012 North Slope Communications Centers. Management of ice by ice management vessels will occur during a drilling season predominated by open water and thus will not contribute to ice hazards, such as ridging, override, or pileup in an offshore or nearshore environment.

The ice-management/anchor handling vessels would manage any ice floes upwind of the *Kulluk* or *Discoverer* by deflecting those that could affect the *Kulluk* or *Discoverer* when it is on location conducting exploration drilling operations. The ice-management/anchor handling vessels would also manage the *Kulluk* or *Discoverer's* anchors during connection to and separation from the seafloor. The ice floe frequency and intensity are unpredictable and could range from no ice to ice densities that exceed ice-management capabilities, in which case exploration drilling operations would be stopped and the *Kulluk* or *Discoverer* disconnected from its anchors and moved off site. If ice is present, ice management activities may be necessary in early July and towards the end of operations in late October, but data regarding historic ice patterns in the area of operations indicate that it will not be required throughout the planned drilling season. When ice is present at the drill site, ice disturbance will be limited to the minimum needed to allow drilling to continue. First-year ice will be the type most likely to be encountered. The ice-management vessels will be tasked with managing the ice so that it will flow easily around and past the *Kulluk* or *Discoverer* without building up in front of it, or around it. This type of ice is managed by the ice-management vessel continually moving back and forth across the drift line, directly updrift of the *Kulluk* or *Discoverer* and making turns at both ends. During ice-management, the vessel's propeller is rotating at approximately 15–20 percent of the vessel's propeller rotation capacity. Ice management occurs with slow movements of the vessel using lower power and therefore slower propeller rotation speed (*i.e.*, lower cavitation), allowing for fewer repositions of the vessel, thereby reducing cavitation effects in the water. Occasionally, there may be multi-year ice ridges that would be managed at a much slower speed than that used to manage first-year ice. Shell does not intend to break ice with the ice-management vessels (if breaking can be avoided) but, rather push it out of the area as described here. Shell has indicated that ice breaking could be conducted if the ice poses an immediate safety hazard at the drill sites, but is far from preferred as indicated in the IMP (see Attachment A).

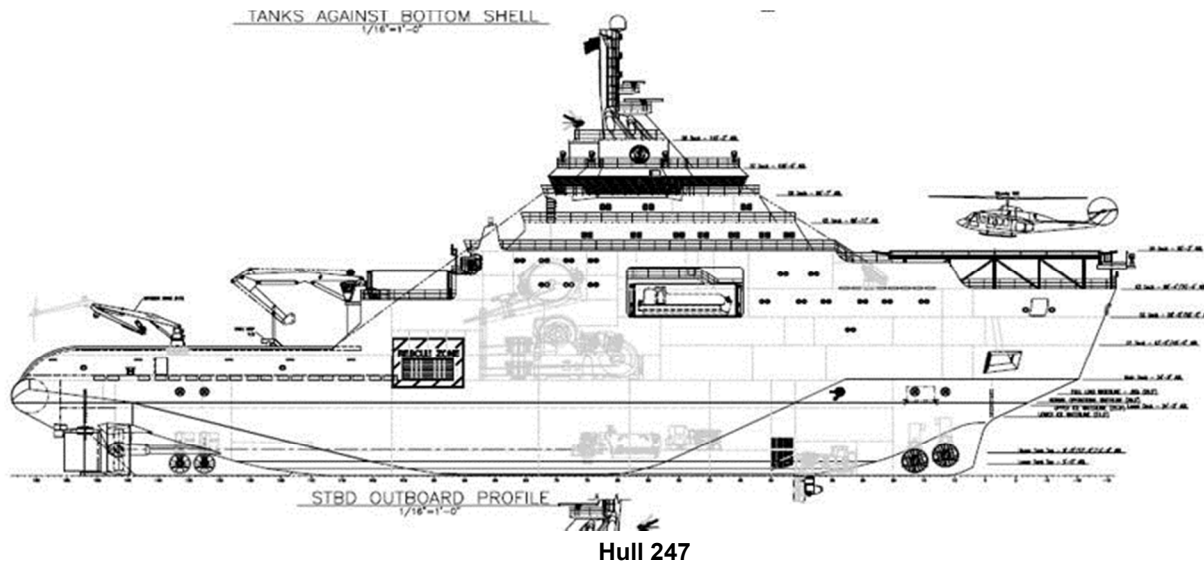


M/V Nordica

As described in Section 1.2, Shell's ice management fleet consists of the M/V *Nordica*, or a similar vessel, as an ice management vessel in support of the *Kulluk* or *Discoverer*, and the vessel *Hull 247* or a similar vessel, serving primarily as an anchor handling vessel and secondarily as ice management vessel. The ice management vessels will generally remain outside the immediate drill site area, the *Nordica* and *Hull 247* will generally occupy a 40° arc up to 3.1 mi (5 km) upwind originating at the *Kulluk* or *Discoverer* (Figure 1-2-2). It is anticipated that the ice management vessels will be managing ice for 38 percent of the

time when within 25 mi (40 km) of the *Kulluk* or *Discoverer*. Ice management vessels typically remain upcurrent to anticipate ice movement well before it may become a safety issue for the *Discoverer* or *Kulluk* (see Figure 1-2-2). Active ice management involves using the vessel to steer larger floes so that their path does not intersect with the drilling vessel. In some instances, the ice management vessel may have to break ice that is an immediate safety hazard for the

drilling vessel. Around-the-clock ice forecasting using realtime satellite coverage will support the ice management duties. This vessel will enter and exit the Beaufort Sea with the *Kulluk* or *Discoverer*.



Hull 247, or a similar vessel, will serve as the primary anchor handling vessel, and as an auxiliary ice management vessel in support of the *Kulluk* or *Discoverer*. The anchor handler's duties include setting and removing anchors and managing smaller ice floes that may pose a potential safety issue to the *Kulluk* or *Discoverer* or the support vessels that will service either drilling vessel. *Hull 247*, or similar vessel, will enter and exit the Beaufort Sea with the *Kulluk* or *Discoverer*.

During transit, impacts on polar bears, Pacific walrus (and all other marine mammals) and subsistence hunting activities will be minimized. The *Kulluk* or *Discoverer* and support vessels will traverse north through the Bering Strait into the Chukchi Sea along a route that allows for the highest degree of safety regarding ice conditions and sea states. Those vessels that can safely travel outside of the polynya zone will do so unless it is necessary to break ice (as opposed to managing ice by pushing it out of the way). In this case, those vessels will move into the polynya zone far enough so that ice breaking is not necessary. If it is necessary for any vessel to move into the polynya zone, Shell will notify the local communities of the change in the transit route through the Com Centers. Once the vessels are beyond the Chukchi Sea polynya zones, they will transit the Beaufort Sea along a coastal route until they arrive in the exploration drilling area in Camden Bay.

1.4 Oil Spill Prevention and Contingency Planning

Shell is committed to conducting safe and environmentally responsible operations in the Beaufort Sea. To achieve this goal, oil spill prevention is a primary priority in all aspects of operations. Shell's Beaufort Sea Regional Exploration Program Oil Discharge Prevention and Contingency Plan (ODPCP) emphasizes the prevention of oil pollution by employing the best

control mechanisms for blowout prevention and fuel transfer operations, as well as implementing mandatory programs for ensuring personnel practice prevention in all aspects of operations. Prevention training will include strict procedures and management practices to eliminate spills in all aspects of operations. In addition, all project personnel, including employees and contractors, involved in oil spill contingency response would receive prevention and response training as described in the ODPCP. Training drills also will be conducted periodically to familiarize personnel with onsite equipment, proper deployment techniques, and maintenance procedures.

Despite the very low likelihood of a large oil spill event, Shell has designed a response program based upon a regional capability of responding to a range of spill volumes, from small operational spills up to and including the Worst Case Discharge (WCD) from an exploration well blowout. Shell's program is developed to fully satisfy the response planning requirements of the State of Alaska and federal oil spill planning regulations. The ODPCP presents specific information on the response program that includes a description of personnel and equipment mobilization, the incident management team organization, and the strategies and tactics used to implement effective and sustained spill containment and recovery operations.

During the proposed exploration drilling program, the drilling vessel will be accompanied by an ice management vessel, an arctic-class ice management/anchor handler, and other support vessels that include an OSR barge with associated ice-class tug. The OSR barge and tug will provide the primary oil spill response platform, additional recovered liquid storage, and storage of an oil containment system along with assistance from the anchor handler to supplement the response as needed. Vessels of similar type and class will be used if these specific vessels are not available.

The dedicated OSR barge (*Arctic Endeavor* and *Pt. Oliktok*) would be staged in the vicinity of the *Kulluk* or *Discoverer* and possess sufficient onboard storage capacity 18,636 bbl (2,963 cubic meters [m³]) to provide containment, recovery, and storage for the initial 24-hour operational period. An Arctic OST would be staged within 240 mi (384 km) of the Beaufort Sea drill site and would arrive at the recovery site within 24 hours of departure from its staging location. The anchor handler, *Hull 247* and a similar vessel (*Harvey Spirit*, *Carol Chouest*, or similar) with a minimum storage capacity 8,000 bbl (1,272 m³), would be available to relieve the OSR barge to lighten its recovered fluids to the OST. The OSR barge, *Hull 247* and *Harvey Spirit*, *Carol Chouest*, or similar, will work in conjunction to maintain containment and skimming operations and to lighten recovered fluids to the OST for the duration of the response. The OST will possess a minimum liquid storage capacity of 513,000 bbl, sufficient capacity to store all recovered liquids for 20 days of recovery operations. Additional personnel may also be transported via helicopter or vessel from a land- or vessel-based staging area.

Shell's primary response action contractor for Beaufort Sea offshore, nearshore, and onshore spill response is Alaska Clean Seas (ACS). Nearshore recovery efforts implemented by ACS are staged out of Prudhoe Bay with assistance from Auxiliary Contract Response Teams and Village Response Teams personnel. Additionally, Arctic Slope Regional Corporation Energy Services – Response Operations, LLC acts as Shell's support response action contractor to provide dedicated response vessels, skimmers and equipment for the nearshore and offshore operations. Response activities will be conducted using ACS or Shell tactics, as defined in ACS's Technical

Manual and Shell's Beaufort and Chukchi Seas Regional Tactics Manual, or otherwise defined in the ODPCP.

Wildlife protection strategies are discussed in the ACS Technical Manual, Volume 1, Tactics W-1 through W-6 (manual is associated with the ODPCP). The primary objective is to protect wildlife by preventing birds and mammals from entering spill or containment areas. Containment areas will be monitored until USFWS and/or ADF&G determine that monitoring is no longer required. In general, wildlife protection strategies include, but are not limited to:

- Containment and controls to limit the spread of oil, and the area influenced by the spill and response options
- The drilling vessel has a MMO on board at all times
- Hazing of birds and mammals
- Capture and relocation of wildlife in direct threat
- Aircraft monitoring

Refer to the following documents (not attached) for additional information:

- Beaufort Sea Regional ODPCP - Wildlife Capture, Treatment and Release Programs, Beaufort Sea Oil Spill Response Planning
- ACS Tactics Manual – Sections W1 through W6
- DRAFT “Oil Spill Response Plan for Polar Bears in Alaska”, USFWS Marine Mammals Management, June 2010

In the event of an accidental release that may impact shoreline resources, including Cross Island and Kaktovik, additional certified bear guards and security staff would be deployed to protect workers and Polar Bears. Hazing equipment will be stored at the Deadhorse warehouse and office building. USFWS staff may also be deployed to provide additional oversight and consultation in the event of a major response. Section 3.5 of this plan outlines an adaptive management approach between Shell and the USFWS to protect polar bears and walrus in the unlikely event of an oil spill.

2.0 POLAR BEAR, PACIFIC WALRUS, AND GRIZZLY BEAR PRESENCE DURING PLANNED DRILLING ACTIVITIES OFFSHORE BEAUFORT SEA

2.1 *Polar Bears*

Polar bears are widely distributed at low densities across the North Slope. Polar bears are most abundant near coastlines and the southern edge of the ice, but they can occur throughout the polar basin. They make extensive movements related to the seasonal position of the ice edge (ADF&G 2008a). About 2,000 polar bears can be found in the Alaskan Beaufort Sea region (USFWS 2003a; USFWS 2003b; USFWS 2011). They use an area extending more than 800 mi (1,280 km) along the north coast of Alaska and Canada.

During the summer, bears spend most of their time on the drifting pack ice. Encounters are most frequent along the coast (particularly at Endicott, West Dock, Milne Point, and Badami) and greater numbers can sometimes be found around whale carcasses, and across the barrier islands. However, bears have been known to venture inland. When polar bears emerge from dens with their cubs in the spring they start traveling on drifting sea ice and forage for food. Extra care is necessary at these times to properly store and dispose of food waste to prevent polar bear attraction and their entry into work areas. Polar bears will generally avoid human activities if they are not attracted by food and wastes. ADF&G data document polar bear sightings and den locations throughout the region; however, if proper mitigation is followed, polar bear presence in the lease area during operations is expected to be rare. Polar bears typically exit their dens by March or April; therefore there would be no active dens during the exploration drilling program.

2.2 *Pacific Walrus*

Pacific walrus occur seasonally from Bristol Bay to Point Barrow (Bering and Chukchi Seas), and may be present in the coastal waters of the Beaufort Sea, where they are considered an extralimital species, periodically transiting through the region during the open water season. It is unlikely that Pacific walrus will be in the vicinity of the exploration drilling operations during the 2012 drilling season.

Most Pacific walrus migrate northward during spring and return south during the fall. Migrations are directly related to the seasonal advance and retreat of the sea ice (ADF&G 2008b). Pacific walrus can also be expected in shallow waters near the coast or on ice closer to land. USFWS surveys have estimated up to 101,213 walrus on the Chukchi Sea pack ice in September.

2.3 *Grizzly Bears*

Grizzly bears may be present on the North Slope and may be present along the shoreline during the summer months while foraging for food, taking advantage of whale or seal carcasses that are present, or eating human refuse. Given that the vast majority of the exploration drilling program activities are offshore, and the habitat of grizzly bear is onshore, it is extremely unlikely that interactions with grizzly bears will happen during exploration drilling activities with the possible exception of shore base operations at Deadhorse.

3.0 THE PLAN – SPECIFIC OBJECTIVES AND ACTIONS

Because exploration drilling activities and/or support activities will be occurring in polar bear habitat and in areas where Pacific walrus and grizzly bear may occasionally be found, complete avoidance of these animals cannot be ensured. However, precautions detailed in this document can reduce the chances of human encounters and problems with bears and walrus.

Objectives of the Plan are to:

- prevent (avoid) bear/human and walrus/human encounters and interactions;
- educate workers about the controls used to prevent encounters and interactions;

- protect workers, bears and walrus during drilling activities, ice management and in the unlikely event of an oil spill; and
- implement reporting and observation procedures.

During the duration of the drilling activities, Shell will be aware of, or have established, a 24 hour direct connection (duty line) to personnel from the USFWS.

3.1 Prevent Polar and Grizzly Bear/Human Interactions

There is always the potential for bear encounters during field activities even when all precautions are taken to avoid and eliminate attractants. Early detection of bears in the vicinity of operations is an essential element to prevent bear/human encounters. Bear avoidance and encounter procedures are presented in Attachment C. Workers will regularly and frequently observe their surroundings to detect bears in project areas. MMOs are the most likely personnel to notice bears or walrus because their job description requires them to look for and identify marine mammals (Attachment B) near project activities. They will be the primary support for project activities with the potential to encounter bears.

In contact situations, the main concern is to maintain the safety of personnel. The goal is to avoid and minimize potential conflict and bear/human interactions.

Actions that will be taken if bears are in the area include:

- If a bear is observed, alert all on-site personnel so work activities can be altered or stopped to avoid interactions. Bear sightings will be reported to the designated representative.
- Depending on the distance between the bear and the activities, retreating to the safety of vessels, emergency shelter, or buildings or vehicles if an encounter occurs in developed onshore areas may be necessary.
- Personnel should give bears plenty of room and should not approach or crowd bears. Every bear has “personal space” – the distance in which they feel threatened. The greater the distance between the worker and the bear, the better for conflict avoidance.
- Personnel are forbidden from feeding bears or any other wildlife.

3.2 Protecting Workers and Bears

Worker safety is a priority. The following procedures will be implemented to ensure worker awareness and knowledge about their own safety concerning bears. A copy of the Bear Avoidance and Encounter Procedures are provided as Attachment C.

- To avoid surprise encounters, personnel exiting a vessel or other facility will check behind doors, blind spots, and access areas prior to exiting to avoid a surprise encounter.
- Polar bears traverse along the barrier island corridor throughout the year. During summer months, increased numbers are anticipated in this area, particularly during the months of August and September.

- Personnel will be made aware that bears will hide behind structures, and to be conscience of this.
- Areas will be illuminated during hours of darkness, when workers are present.
- Periodic safety sessions will be conducted to address and elevate awareness of bear avoidance techniques and activities.
- Outdoor work crews will survey the surrounding area, to ensure bears cannot enter without being detected.
- Workers will become familiar with the local environment.
- A “buddy system” will be employed, to ensure fellow workers are informed about the whereabouts and activities that may bring workers in contact with bears.
- Workers and facility occupants will be alerted if a bear is observed.
- A Bear Guard will be designated, if necessary, to monitor for the presence of bears. The Bear Guard may also hold another work position that would allow him or her to monitor for the presence of bears, such as equipment operator.
- Bear hazing will be approved by the designated representative (e.g., site manager). Only a designated properly trained and authorized bear Hazer will be permitted to haze bears. Personnel other than the designated bear Hazer will not attempt to haze a bear.
- An 0.5 mi (800 m) exclusion zone will be enforced around bears observed on land or ice during travel status. Concentrations of polar bears and walrus will be avoided by a minimum of the 0.5 mi (800 m) exclusion zone cited above.
- Aircraft will maintain a 1,500 ft [457 m] minimum altitude within 0.5 mi (800 m) of bears hauled out onto land or ice, unless weather does not permit this altitude.
- When within 1,000 ft (305 m) of polar bears in water, vessels will reduce speed, and avoid multiple changes of direction.
- Vessel speed to be reduced during inclement weather conditions in order to avoid collisions with bears.
- A bear culvert trap has been constructed for oil spill response needs and is stored at the shore base facility in Deadhorse.

Polar bear monitoring, reporting, and survey activities will be conducted in accordance with the regulations that implement the MMPA as outlined in 71 FR 26770. The basic monitoring and reporting requirements are:

- Following a chain-of-reporting, and responding to polar bear sightings. Attachment D depicts the Wildlife Notification Flow Chart.
- Designating a qualified individual or individuals to observe, record, and report the effects of the activity on polar bears. A USFWS-approved monitoring plan requires trained onboard MMOs. MMOs will monitor the exclusion zone for bears. If a bear is sighted, mitigation measures as specified in the 4MP (Attachment B) will be implemented.

3.3 Protecting Workers and Walrus

Worker safety is priority. The following procedures are to ensure worker awareness and knowledge about their own safety concerning walrus.

- Drilling support vessels will observe an 0.5 mi (800 m) exclusion zone around walrus observed on land or ice during travel status except during active ice management (see Section 3.4 for procedures during ice management).
- Aircraft will maintain a 1,500 ft (457 m) minimum altitude within 0.5 mi (800 m) of Pacific walrus hauled-out onto land or ice, unless weather does not permit this altitude.
- When within 1,000 ft (305 m) of walrus in water, vessels will reduce speed, and avoid multiple changes of direction.
- Vessel speed to be reduced during inclement weather conditions in order to avoid collisions with walrus.

Walrus monitoring, reporting, and survey activities will be conducted in accordance with those outlined in 71 FR 26770 of the MMPA. The basic monitoring and reporting requirements are:

- Following a chain-of-reporting, and responding to walrus sightings. Attachment D depicts the Wildlife Notification Flow Chart.
- Designating a qualified individual or individuals to observe, record, and report the effects of the activity on walrus. A USFWS-approved monitoring plan requires trained onboard MMOs. MMOs will monitor the exclusion zone for walrus. If a walrus is sighted, mitigation measures as specified in the 4MP (Attachment B) will be implemented.

3.4 Protecting Polar Bears and Walrus during Ice Management

Ice management is conducted to ensure the integrity and safety of the drill vessel and its crew. Because the vessels must come into contact with the ice floes during ice management activities, special protocols (as outlined below) will be in place during these activities to minimize the potential for effects on walrus or polar bears. These are in addition to those identified above in Section 3.3. Shell will implement these protocols in a phased approach, based partially on the number of observed walrus in the vicinity of the ice management operations and the perceived ice threat to drilling operations and safety. The approach will also necessarily be one of adaptive management because all situations cannot be foreseen, because both the ice conditions (trajectory, size, density) and animal behavior (hauled out, swimming, etc.) are subject to change as they approach the drill site without interference by Shell.

Reconnaissance

- Shell will conduct real-time monitoring of sea ice as described in the IMP (see Attachment A) and summarized above in Section 1.3.
- Shell will have MMOs on the ice management vessels as required by the IHA and 4MP.

Consultation with USFWS

- A 24 hour duty phone will be established with the USFWS
- All polar bear and walrus sightings will be reported to USFWS as described in Sections 8.1 and 8.3, respectively
- Indication that large areas of pack ice are approaching the area of the drilling vessel and may require management, and/or sightings of large numbers of walrus on ice (note: given that walrus are extralimital in the Beaufort Sea – this situation is much less likely than the prospect of this occurring in the Chukchi Sea), will be reported to the USFWS contact identified in Section 8.3, immediately by telecommunications (duty phone); this will commence consultation and involve the USFWS in the adaptive management process

Adaptive Management Approach

- If the polar bears are deemed to be a threat to personnel safety, or to themselves, hazing techniques as permitted under an intentional take authorization will be used to keep the bears out of harms way. Shell will follow the appropriate reporting protocol in this event (Section 8.1).
- If hauled-out walrus are present, Shell will monitor to ascertain whether the walrus appear as if they are going to stay on the ice or might abandon the ice on their own. Shell will avoid, to the maximum extent possible, the management of ice on which walrus have hauled out. Shell will attempt to communicate with the USFWS and consult with the agency before management of ice with hauled out walrus.
- If an ice floe with hauled out walrus must be managed, the vessel will approach the ice floe at as slow a speed as is possible to allow the walrus to exit the floe before contact; the walrus will not be intentionally harassed
- If the walrus stay on the ice in the vicinity of ice management activities, Shell will notify the USFWS (via the USFWS 24 hour duty line) and begin discussions regarding appropriate action. With the USFWS input, we would consider the following ice management options:
 - Low Threat Level: If the ice does not represent a significant threat to the drill vessel, allow the ice to pass through the drilling area with walrus onboard
 - Moderate Threat Level: If ice poses a significant threat and hauled out walrus presence is moderate on the ice, carefully conduct ice management
 - High Threat Level: If ice poses a significant threat to the drill vessel and hauled out walrus presence is high on the ice, or the consequences of ice management are high, Shell will engage in further consultation with USFWS to come to a resolution regarding intentional harassment of walrus
- All walrus sightings will be reported to USFWS as described in Section 8.3

All mitigation measures listed in Section 3.2 and 3.3 will be adhered to unless the mitigation measures need to be adjusted/alterd/or avoided based on guidance from USFWS because they are in conflict with the adaptive management approach described in this section.

3.5 Protecting Polar Bears and Walrus during Oil Spill Response

The probability of a very large oil spill from a well blowout occurring is low. Worker safety is a priority during the unlikely event that there will be an oil spill response situation. Shell has prepared an ODPCP in the event of an oil spill and the ODPCP includes procedures to be implemented in order to protect wildlife. The ODPCP has been approved by BOEMRE and the State of Alaska, Alaska Department of Environmental Conservation (ADEC), and is currently being revised for the 2012 exploration drilling program. ACS is Shell's primary response action contractor and their wildlife protection strategies can be found in sections W1 through W6 of Volume 1 of ACS' Tactics Manual. The tactics manual is part of the ODPCP approved without conditions on March 11, 2010, has undergone revision for exploration drilling, planned to begin in 2012, and is currently under review by BOEMRE.

The following procedures are to ensure worker awareness and knowledge about their own safety concerning polar bears and walrus. The approach will also necessarily be one of adaptive management because all situations cannot be foreseen. Defined levels of response for both offshore and onshore in the event of an oil spill are adapted from the ACS Tactics Manual Section W-1, which in turn is based on the Wildlife Protection Guidelines for Alaska, Annex G of the Alaska Regional Response Team Unified Plan:

1. Primary Response – Containment and Recovery of Oil: this level of response deals with controlling the spread of oil and keeping it from important habitat; oil is recovered as quickly as possible:
 - Primary response for protecting polar bears and walrus from oil spills shall be to prevent oil from reaching areas where the animals are concentrated
 - Areas of concentration for polar bears include areas of pack ice and barrier islands
2. Secondary Response – wildlife hazing by trained personnel: haze wildlife away from and prevent them from entering the spill area; hazing techniques include passive excluders (e.g., balloons, reflector tape), propane fueled cannons, shotguns, pistols, cracker shells, banger, rubber bullets (for bear deterrence) and shotgun slugs (for protection from bears); electric fencing may be used on land:
 - Secondary response for protecting polar bears and walrus from oil spills shall be to deter the animals from an oil slick or contaminated habitat
 - Any deterrence or hazing of polar bears or walrus would require an intentional take authorization from the on-scene coordinator and a permit from USFWS or National Marine Fisheries Service (NMFS), and would be conducted according to protocol identified in Tactic W-1 of the ACS Technical Manual

- Dead oiled wildlife shall be collected and disposed of as indicated in Tactic W-14 of the ACS Technical Manual to prevent any secondary poisoning through ingestion of petroleum
3. Tertiary Response – Capture, stabilization and treatment of oiled wildlife by trained and authorized personnel.
- Tertiary response includes the capture, stabilization, and treatment of oiled wildlife
 - Any capture or treatment of polar bears or walrus would require authorization from the on-scene coordinator and a permit from USFWS or NMFS
 - Any tertiary response would be conducted according to protocol identified in Tactic W-1 and W-2 of the ACS Technical Manual

Oiled walrus or polar bears may be captured by authorized USFWS personnel (or personnel authorized by the USFWS; not Shell) using tranquilizers or baited culvert traps (polar bears only). Upon capture, it will transported by truck or helicopter to an ACS stabilization facility. Those animals that are determined to be able to survive in the wild are released. Other animals that are deemed incapable of surviving release to the wild will be held for potential transport to a zoo. In some cases, animals may be euthanized depending on the extent of their injuries. Details surrounding the capture, stabilization and treatment of oiled polar bears can be found in the DRAFT version of the *Oil Spill Response Plan for Polar Bears in Alaska*, USFWS Marine Mammal Management June 2010.

ACS maintains a facility and equipment in Prudhoe Bay that is capable of being transported in an emergency situation. Equipment includes a cleaning, treatment and necropsy kit; three temporary holding cages and a large water tank. Potential short term holding facilities occur in Barrow at the Barrow Arctic Science Consortium/Naval Arctic Research Laboratory facility, the Anchorage Zoo and the Seward Sealife Center. All mitigation measure listed in Section 3.2 and 3.3 will be adhered to by Shell personnel involved in implementing response tactics, unless after consultation with USFWS personnel they are in are in direct conflict with the adaptive management procedures.

4.0 FOOD WASTE MANAGEMENT PLAN

The most important factor in the avoidance of attracting bears to active operations is to correctly handle food and associated waste. Proper handling of food and food-associated waste is important in reducing the potential for bears to associate humans and facilities with food. The following practices will be implemented.

- Food wastes will not be discharged overboard from the drilling vessel.
- Personnel will separate food waste from other solid wastes. Food and food-associated waste will be place only into containers secured from wildlife access onboard vessels or in vehicles. Personnel will use only designated receptacles for food and associated waste inside facilities or those that are secure from wildlife access.
- No food-associated wastes may be placed into solid-waste containers.

- Containers will be located where there is good visibility and away from high-traffic areas.
- Personnel will back-haul food-associated waste to approved bear-proof containers.
- Dedicated receptacles will be secured – there should be no food-associated attractants in the containers.
- Back-hauled food-associated waste will not be left in unmanned facilities, vessels, or unsecured vehicles.

5.0 SAFETY AND COMMUNICATION

The following safety and communication practices will be implemented.

- Contact the designated Bear Guard or designated representative for the most recent bear sighting information.
- If you sight a bear, look around for other bears while moving to a safe location. Alert other workers in the area. Do not attempt to scare the bear away. Do not approach a bear for any reason. Once in a secure location, immediately report the bear sighting to the on-site Shell representative. Only trained personnel are authorized to deal with animal problems. Do not try to photograph a bear unless you are in a secure location. Early bear detection is essential to limit human/bear encounters.
- Use the “buddy system” during outside jobs.
- Make sure personnel are trained to operate radios or other communication equipment.
- Make noise before walking into an area with poor visibility.
- Do NOT take food with you. If it is necessary to eat away from the designated camp mess unit, make sure that all food is safely stored inside secure containers.
- Coordinate with other field operations to ensure the activities are compatible with bear avoidance and protection.

6.0 TRAINING

6.1 Marine Mammal Observer Training

Prior to any vessel departure, MMOs will have completed a training course to recognize marine mammals, including polar bear and Pacific walrus, in water or on land or ice, to properly record sightings, and to advise what mitigation measures should be followed. The MMO training curricula will be preapproved by USFWS and NMFS. Trained MMOs will receive a document to verify course completion. Course information will include:

- Overview of MMPA and relevance to drilling activity and mammals
- Overview of drilling activities
- Overview of mitigation measures

- MMO roles and responsibilities
- MMO regulatory requirements
- Identification of arctic marine mammals by species, sex, and age
- Search methods for marine mammals
- Overview of data collection and reporting requirements

6.2 *Bear Guard Training*

Bear guards will undergo an intensive training program performed by USFWS. Training will include:

- bear habits, range, and habitat
- how to minimize the number of human/bear interactions
- the proper use of deterrents and projectiles to haze bears
- how to report a bear sighting, hazing, and/or fatal taking
- weapons handling/safety qualification

6.3 *Other Training Materials and Meetings*

Employees will be provided training that describes bear behavior and safety concerns, including hazing (e.g., new employee orientation, safety discussions). All hazing will be performed by a designated person who is trained in appropriate hazing tactics and firearms safety. The employee safety training program will include:

- Bear Avoidance Action Plan;
- USFWS or ADF&G (or comparable) Bear Encounter/Hazing Training;
- Firearms training for designated Bear Guards;
- Bear awareness reinforced at daily safety meetings; and
- Video training material:
 - “Human/Polar Bear Interaction” (Alaska Oil and Gas Association)
 - Working in Polar Bear Country, for Industrial Managers, Supervisors and Workers
 - Staying Safe in Polar Bear Country, A Behavioral-based Approach to Reducing Risk.

7.0 AT-RISK LOCATIONS AND SITUATIONS

With the exception of limited marine vessel traffic in and out of West Dock in Prudhoe Bay, work areas during the exploration drilling program will be exclusively offshore and distant from most prospective at-risk locations. Also, given that all personnel will be vessel-based, the

prospect of at risk situations are remote. However, in the event that exceptional circumstances occur, the following lists locations/situations where risk of bear or walrus encounters may be higher and where attention to mitigating these risks is essential:

- sea ice floes, during ice management by vessels
- coastal bluffs
- barrier islands
- small watercraft (i.e., oil spill response drills or onshore equipment inspections)
- marine vessels, particularly those with low freeboard
- waste generation and collection facilities
- “blind” areas that are obscured by onshore facilities, equipment or other obstacles

At-risk situations and activities include:

- transit in sea ice, and ice management by vessels
- activities on or around barrier islands
- any portable, temporary shelter (i.e., oil spill response drills or equipment caching)
- emerging from vessels or shorebase facilities
- dark/unlighted and visually obscured areas

8.0 REPORTING

Sightings of bears or walrus by MMOs or other workers during the exploration drilling program will be recorded and reported to USFWS and ADF&G by a Shell Regulatory Affairs staff designee. Given that MMOs will be drilling vessel- and vessel-based, the majority of sightings/observations are expected to be marine mammals. Polar bear sightings will be reported according to the procedures and process described in Section 8.1 of this Plan, grizzly bear sightings will be reported in accordance with Section 8.2, and walrus sightings will be reported in accordance with Section 8.3.

Shell developed a 4MP (Attachment B) for its exploration drilling program activities in the Beaufort Sea. The 4MP supports protection of the marine mammal resources in the area by adhering to mitigation measures, fulfilling wildlife sighting/observation and reporting obligations to the USFWS (and NMFS), and providing data useful for understanding the impacts of exploration drilling activities on Pacific walrus and polar bear. The 4MP dedicates multiple personnel 24-hours per day to the task of watching for, recording observations of, and instituting mitigation measures for wildlife observed, most notably those protected by the MMPA, ESA, or both. The outcome of conducting the 4MP will be resolute reporting of polar bear and Pacific walrus observed in the vicinities of the exploration drilling program activities. The 4MP for exploration drilling program activities is provided as an attachment to the LOA application (see Attachment B).

After the appropriate bear or walrus encounter procedures have been followed, workers will be required to report the presence of a bear or walrus using the procedure outlined below. A copy of the Wildlife Notification Flow Chart is included as Attachment D.

- 1) Workers are required to notify immediately the on-site Shell representative of a bear or walrus sighting and complete the appropriate sighting/observation form (Attachments E through G).
- 2) Workers are to document any interactions (such as the use of cracker shells, vehicle horns, or other auditory devices; using vehicles or equipment to deter bears from an area; taking direct action to harass a bear out of an area; etc.) in the sighting/observation form.
- 3) If the bear or walrus was sighted within an exclusion zone or human/bear interaction took place (i.e., actions listed under bullet 2 above), the on-site Shell representative must promptly contact Shell Regulatory Affairs at 907-830-7435 (24 hrs) or 907-646-7152 (business hrs). The on-site Shell representative must also fax or e-mail the completed sighting/observation form to the Shell Regulatory Affairs designee in Anchorage at 907-646-7145 (fax). The Shell Regulatory Affairs designee will send (fax or e-mail) the completed sighting/observation form within 24 hours of the bear observation to the USFWS or ADF&G agency contact.
- 4) If the bear or walrus was sighted outside an exclusion zone and no human/bear interaction took place, the MMO will provide the sighting/observation information to the Shell Regulatory Affairs designee in Anchorage by e-mail in the daily MMO report.

8.1 Polar Bear Reporting

Actions will be taken to the maximum extent practicable to avoid and minimize potential interactions with polar bears. MMOs will be assigned to project vessels to identify potential encounters and record polar bear behavior. Using the procedure provided in Section 8.0 and in the Wildlife Notification Flow Chart (Attachment D), the Shell Regulatory Affairs designee will be informed of polar bear sightings/observations. All relevant information must be recorded. The Polar Bear Sighting Report (Attachment E) must be completed to the greatest extent possible prior to submission. Regular reports of polar bear sightings in accordance with the LOA stipulations will be made to the USFWS.

The primary polar bear contact:

Craig Perham
USFWS – Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3810 (direct); 907-786-3800 (main office)
Fax: 907-786-3816
E-mail: craig_perham@fws.gov

Alternate Polar Bear Contact:

Terry DeBruyn
USFWS – Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3800 (main office)
Fax: 907-786-3816
E-Mail: terry_debruyn@fws.gov

8.2 Grizzly Bear Reporting

Actions will be taken to the maximum extent practicable to avoid and minimize potential interactions with grizzly bears. Using the procedure provided in Section 8.0 and in the Wildlife Notification Flow Chart (Attachment D), the Shell Regulatory Affairs designee will be informed of grizzly bear sightings/observations. All relevant information must be recorded. The Grizzly Bear Observation Form (Attachment F) is a typical report form must be completed to the greatest extent possible prior to submission. Regular reports of grizzly bear sightings will be made to the ADF&G.

The ADF&G grizzly bear contact is:

Dick Shideler, ADF&G
1300 College Road
Fairbanks, AK 99709-4173
Phone: 907-459-7283
Fax: 907-459-3091
E-mail: dick.shideler@alaska.gov

Local Contact:

Geoff Carroll, ADF&G
Area Wildlife Biologist
P.O. Box 1284
Barrow, Alaska 99723-1284
Phone: 907-852-3464
Fax: 907-852-3465
E-mail: geoff.carroll@alaska.gov

8.3 Walrus Reporting

Vessel traffic will avoid any walrus to the maximum extent practicable to avoid and minimize potential interactions. MMOs will be assigned to project vessels to identify potential encounters and record walrus behavior. Weekly reports of walrus sightings would be made to the USFWS using the Walrus Sighting Report Form (Attachment G).

Actions will be taken to the maximum extent practicable to avoid and minimize potential interactions with walrus. MMOs will be assigned to project vessels to identify potential encounters and record walrus behavior. Using the procedure provided in Section 8.0 and in the Wildlife Notification Flow Chart (Attachment D), the Shell Regulatory Affairs designee will be informed of walrus sightings/observations. All relevant information must be recorded. The Walrus Sighting Report (Attachment G) is a typical report that must be completed to the greatest extent possible prior to submission. Regular reports of walrus sightings in accordance with the LOA stipulations will be made to the USFWS.

Primary Pacific walrus contact:

Joel Garlich-Miller
USFWS – Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3820 (direct); 907-786-3800 (main office)
Fax: 907-786-3816
E-mail: joel_garlichmiller@fws.gov

Secondary Pacific walrus contact:

Craig Perham
USFWS – Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3810 (direct); 907-786-3800 (main office)
Fax: 907-786-3816
E-mail: craig_perham@fws.gov

9.0 INTENTIONAL “TAKE” ACTIONS FOR BEARS

Early detection and worker awareness will reduce chance encounters with a bear. If a bear remains on site for an extended period, the on-site Shell representative/Shell Regulatory Affairs designee will contact USFWS or ADF&G (as appropriate) for advice. Firearms with bean bags or rubber bullets, noisemakers, or other appropriate materials will be available on site to provide deliberate and intentional harassment of bears to ensure worker safety. These actions constitute a “take”. If, despite preventive actions, a lethal or non-lethal “take” occurs to protect human life, the following information must be recorded and actions performed:

- Record all details of the event including time, exact location, bear’s behavior, preventive measures followed, etc.
- Record all witness statements
- Polar Bears – Immediately notify Craig Perham with USFWS at (907) 786-3810 (direct line) or (907) 786-3800 (main office). An alternate contact is Terry DeBruyn with USFWS at 907-786-3812 (direct line) or 907-786-3800 (main office)

- Grizzly Bears – Immediately notify Dick Shideler (Fairbanks ADF&G) at (907) 459-7283 and Geoff Carroll (Barrow ADF&G) at (907) 852-3464
- If there is a lethal “take”, the entire animal carcass will be transported to Deadhorse for sealing and processing under the direction of either a responsible USFWS agent designee (polar bear) or ADF&G agent designee (grizzly bear). The agent designee will determine disposition of useable meat (e.g., donation to a Native village).

The trained Bear Guard or designated representative is responsible for:

- recording all the event details including time, exact location, bear’s behavior, preventive measures followed, etc.
- recording all witness statements

10.0 PLAN OF COOPERATION

A Plan of Cooperation (POC) has been developed as a required component of a LOA application under 50 CFR 18.128(d). A POC is also required as part of an application for an IHA from NMFS under 50 CFR § 216.104(a) (12), and under the BOEMRE lease stipulation 5 for lease sales 195 and 202. A POC was prepared and was submitted with the initial Camden Bay EP. An addendum to the POC was prepared for this revised exploration program and it updates the initial POC with information regarding proposed changes in proposed exploration drilling program, and documentation of meetings undertaken to inform the stakeholders of the revised exploration drilling program. The POC Addendum builds upon the previous POC. The POC Addendum is provided to USFWS as Attachment H to this LOA.

The POC Addendum identifies the measures that Shell has developed in consultation with North Slope communities and will implement during its planned Camden Bay exploration drilling program to minimize any adverse effects on the availability of marine mammals for subsistence uses. In addition, the POC Addendum details Shell’s communications and consultations with local communities concerning its proposed revised Camden Bay EP exploration drilling program beginning in the summer of 2012, potential conflicts with subsistence activities, and means of resolving any such conflicts (50 CFR § 18.128(d) and 50 CFR § 216.104(a) (12) (i), (ii), (iv)). Shell has documented its contacts with the North Slope communities, as well as the substance of its communications with subsistence stakeholder groups. Tables summarizing the substance of Shell’s communications, and responses thereto, are included in Attachment H. This POC Addendum may be further supplemented, as appropriate, to reflect additional engagements with local subsistence users and any additional or revised mitigation measures that are adopted as a result of those engagements.

11.0 REFERENCES

ADF&G (Alaska Department of Fish and Game). 2008a. *Wildlife Notebook Series*, accessed February 2008. <http://www.adfg.state.ak.us/pubs/notebook/marine/>.

ADF&G. 2008b. *Wildlife Notebook Series*, accessed February 2008. <http://www.adfg.state.ak.us/pubs/notebook/marine/walrus.php>.

USFWS (U.S. Fish and Wildlife Service). 2003a. *Biological Opinion for Minerals Management Service's Proposed Beaufort Sea Natural Gas and Oil Lease Sale 186 in Beaufort Sea Planning Area Oil and Gas Lease Sales 186, 195, and 202 Final Environmental Impact Statement*. Vol. 4.

USFWS. 2003b. *Environmental Assessment: Proposed Rule to Authorize the Incidental Take of Small Numbers of Polar Bear and Pacific Walrus During Oil and Gas Activities in the Beaufort Sea and Adjacent Coastal Alaska*. U. S. Department of the Interior, Fish and Wildlife Service. Anchorage, AK.

USFWS. 2011. 50 CFR Part 18 *Marine Mammals; Incidental Take During Specified Activities; Proposed Rule*, Federal Register. Part II Vol. 76, No. 48. Posted March 11.

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Attachment A
Ice Management Plan – Beaufort Sea

(Refer to Appendix K of the Revised Camden Bay EP)

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Attachment B
Marine Mammal Monitoring and Mitigation Program (4MP)

(Refer to Appendix D of the Revised Camden Bay EP)

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Attachment C
Bear Avoidance and Encounter Procedures

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Attachment C

Bear Avoidance and Encounter Procedures

All personnel should understand and follow the procedures listed below to detect the presence of bears in work areas and avoid human/ bear encounters.

If your work assignment requires you to be outside of areas that are secure from bears (buildings, heavy equipment cabs, etc.) check directly with your supervisor for the latest report from the designated representative Bear Guard to find out whether bears or bear sign were reported. Potential at-risk situations are walking between enclosed structures at the shore base, outside vehicles and at various work locations.

Arrange with your crew foreman to maintain radio or visual contact with the designated Bear Guard so that you can be alerted immediately to select a secure place if a bear is sighted. Plan the best route in advance to reach safe locations at the shore base or on a vessel from your work area.

Be especially alert in dark conditions and areas of poor visibility outside where most pedestrian areas are illuminated.

Do NOT take food with you. If it is necessary to eat away from the vessel galley or shore base mess unit, make sure that all food is safely stored inside containers aboard ship or inside secure vehicles.

Do NOT leave food wastes or other material that may attract bears outside.

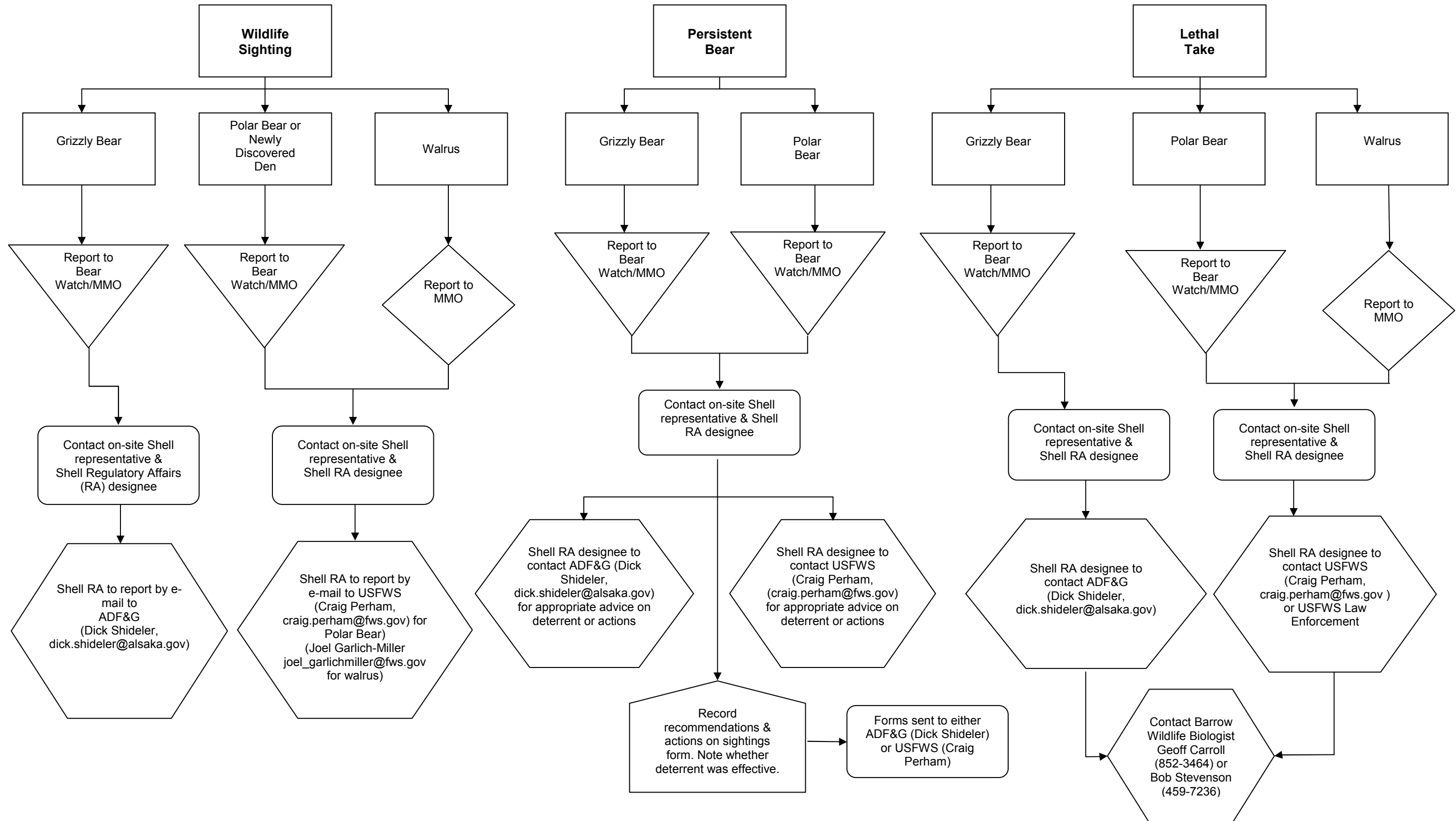
Report all bear sightings (including sign and tracks) immediately to the designated Shell representative when you are in a secure location. Do not expose yourself to look at the bear. Do not try to photograph a bear unless you are in a secure location. Early bear detection is essential to limit human/ bear encounters.

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Attachment D
Wildlife Notification Flow Chart

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WILDLIFE NOTIFICATION FLOW CHART



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Attachment E
Polar Bear Sighting Report

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

POLAR BEAR SIGHTING REPORT

Date: _____ Observer name: _____
Time: _____ Contact number/email: _____

Location: _____

Latitude: _____ Longitude _____ Datum: _____

Weather conditions: Fog _____ Snow _____ Rain _____ Clear _____ Temperature _____ F/C

Wind speed _____ mph/kts
Wind direction _____

Visibility: Poor _____
Fair _____
Good _____
Excellent _____

Number of bears:

_____ Adult M/F
_____ Sub-adult
_____ Unknown

_____ Sow/cub(s)
_____ Sow/yearling(s)
_____ Sow/2YO(s)

Estimated distance of bear(s) from personnel _____ (meters) and facility _____ (meters)
(closest point) (closest point)

Bear behavior (Initial Contact): _____

Bear behavior (After Contact): _____

Description of encounter: _____

Duration of encounter: _____ **Possible attractants present:** _____

Deterrents used/distance:

_____ Crackershell
_____ Vehicle
_____ Rubber bullet
_____ Bean bag

_____ Horn/siren
_____ Spotlight/Headlight
_____ Other _____

Agency/Contacts:

USFWS_Craig Perham (786-3810) (FAX: 786-3816) _____ Time _____ Date _____
ADF&G_Dick Shideler (459-7283) (FAX: 456-3091) _____ Time _____ Date _____

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Attachment F
Grizzly Bear Observation Form

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Bear 10# ____ (ADF&G only)

GRIZZLY BEAR OBSERVATION FORM

Observer: _____ **Company / Agency:** _____

Observation Date: _____ **Time: Start** _____ **Stop** _____

Observation from: Vehicle Ground Building Other _____

Observer's distance from bear: _____ meters

General Location: Deadhorse PB East PB West Kuparuk Endicott

Milne Point Lisburne Point McIntyre TAPS (MP#): _____

Other (latitude/longitude if known): _____

Specific Location: _____ meters _____ (direction) of _____ (facility name)

Dumpster present: Yes No Unknown

Weather: _____ °F Clear / Partly Cloudy Rain Fog Snow

Direction of wind: _____ at _____ mph

Bear Identification: Earflag color: _____ Right _____ Left _____

(Note: "right" / "left" of bear, not observer)

Natural Markings (scars, torn ear, etc.): _____

Other Bears Present: None Cubs: # of cubs _____ # of yearlings _____ # of other _____

Bear Activity: When 1st seen, the bear was: Resting Feeding (natural food)

Feeding (garbage) Feeding/Traveling Traveling

Other: _____

Bear's Reaction to observer: Ignore Approach Avoid

Were other people in area (i.e. not with observer): Yes No Unknown

Bear's reaction to other people: Ignore Approach Avoid

Comments: _____

Deterrence Action Taken: Yes No If "Yes", did you use:

Horn Siren Plastic Slugs Cracker Shell Firecracker

Birdshot Other: _____

Bear Reaction: Ignore Approach Withdraw

Additional Remarks: _____

Please return to: Dick Shideler, Alaska Department of Fish & Game
1300 College Road, Fairbanks, Alaska 99701
Phone: 907-459-7283, FAX: 907-459-3091

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Attachment G

Walrus Sighting Report

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

WALRUS SIGHTING REPORT

Date: _____

Time: _____

Location: (include GPS coordinates if possible) _____

Observer name: _____

Weather conditions: Fog _____ Snow _____ Rain _____ Clear _____ Approx. temperature _____

Wind speed _____ Wind direction _____

Total number of walrus: Adult _____ Sub-adult _____ Unknown _____

Estimated distance of walrus from personnel/facility: _____

Possible attractants present: _____

Walrus behavior: Curious _____ Aggressive _____ Predatory _____ Other _____

Description of encounter: _____

Duration of encounter: _____

Deterrents used/distance: Vehicle _____ Noise-maker _____ Firearms _____ Other _____

Injuries sustained: Personnel: _____

Walrus: _____

Agency/Contacts:

USFWS _____ Time _____ Date _____

ADF&G _____ Time _____ Date _____

CLIENT _____ Time _____ Date _____

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Attachment H
Plan of Cooperation Addendum

(Refer to Appendix H of the Revised Camden Bay EP)

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